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Influence of AgNO3 Treatment on the Flavonolignan Production in Cell Suspension Culture of Silybum marianum (L.) Gaertn

Authors : Anna Vildová, H. Hendrychová, J. Kubeš, L. Tůmová

Abstract : The abiotic elicitation is one of the methods for increasing the secondary metabolites production in plant tissue cultures and it seems to be more effective than traditional strategies. This study verified the use of silver nitrate as elicitor to enhance flavonolignans and flavonoid taxifolin production in suspension culture of Sylibum marianum (L.) Gaertn. Silver nitrate in various concentrations (5.887.10-3 mol/L, 5.887.10-4 mol/L, 5.887.10-5 mol/L) was used as elicitor. The content of secondary metabolites in cell suspension cultures was determined by high performance liquid chromatography. The samples were taken after 6, 12, 24, 48, 72 and 168 hours of treatment. The highest content of taxifolin production (2.2 mg.g-1) in cell suspension culture of Silybum marianum (L.) Gaertn. was detected after silver nitrate (5.887.10-4 mol/L) treatment and 72 h application. Flavonolignans such as silybinA, silybin B, silydianin, silychristin, isosilybin A, isosilybin B were not produced by cell suspension culture of S. marianum after elicitor treatment. Our results show that the secondarymetabolites could be released from S. marianum cells into the nutrient medium by changed permeability of cell wall.

Keywords : Silybum marianum (L.) Gaertn., elicitation, silver nitrate, taxifolin
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